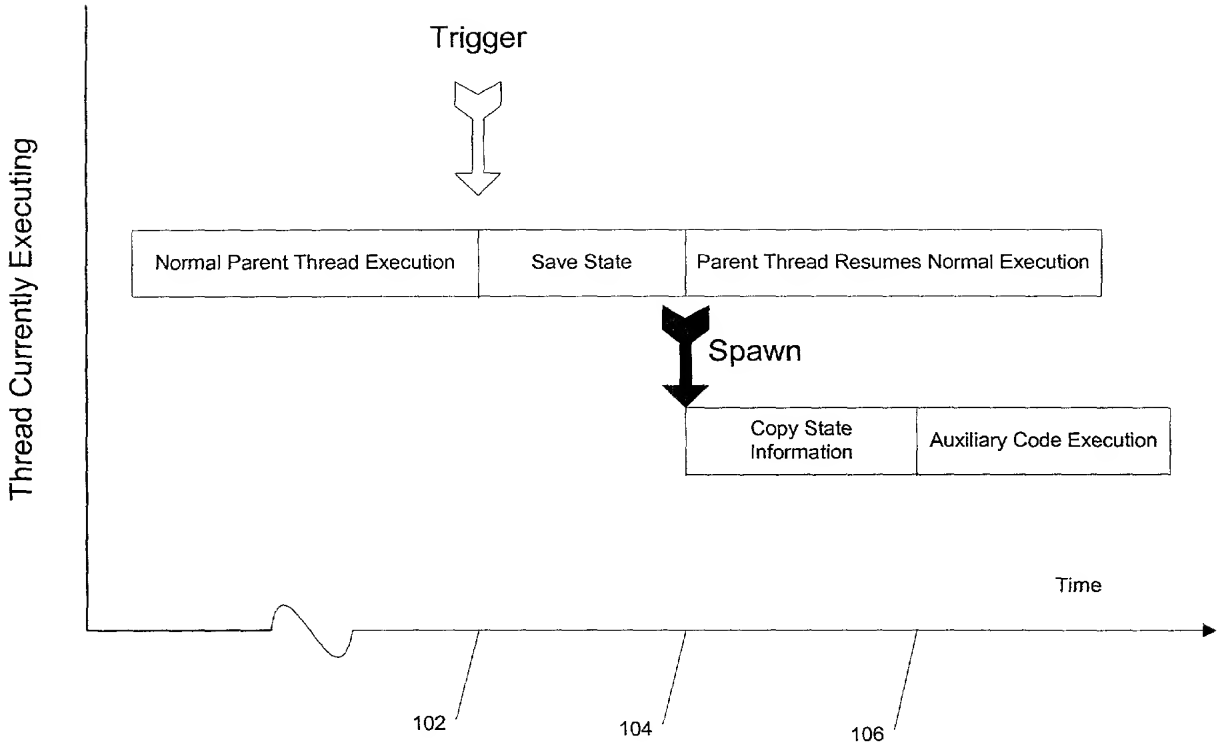
Trigger
Thread Currently Executing
Normal Parent Thread Execution
Save State
Parent Thread Resumes Normal Execution
Spawn
Copy State Information
Auxiliary Code Execution
Time
102
104
106

Figure 1

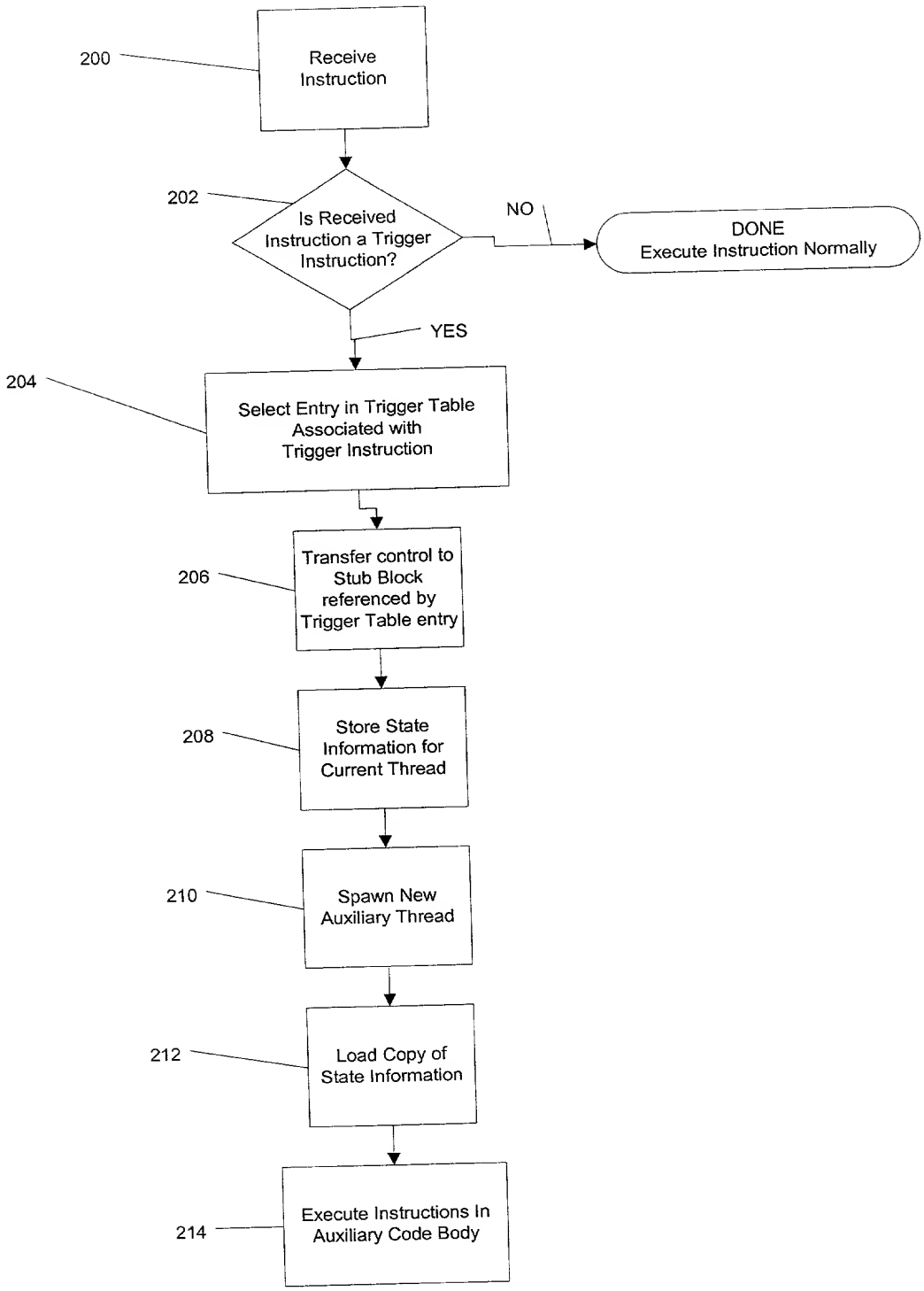
200
Receive Instruction
202
Is Received Instruction a Trigger Instruction?
NO
DONE
Execute Instruction Normally
YES
204
Select Entry in Trigger Table Associated with Trigger Instruction
206
Transfer control to Stub Block referenced by Trigger Table entry
208
Store State Information for Current Thread
210
Spawn New Auxiliary Thread
212
Load Copy of State Information
214
Execute Instructions In Auxiliary Code Body

Figure 2

Docket No. 50325-0950

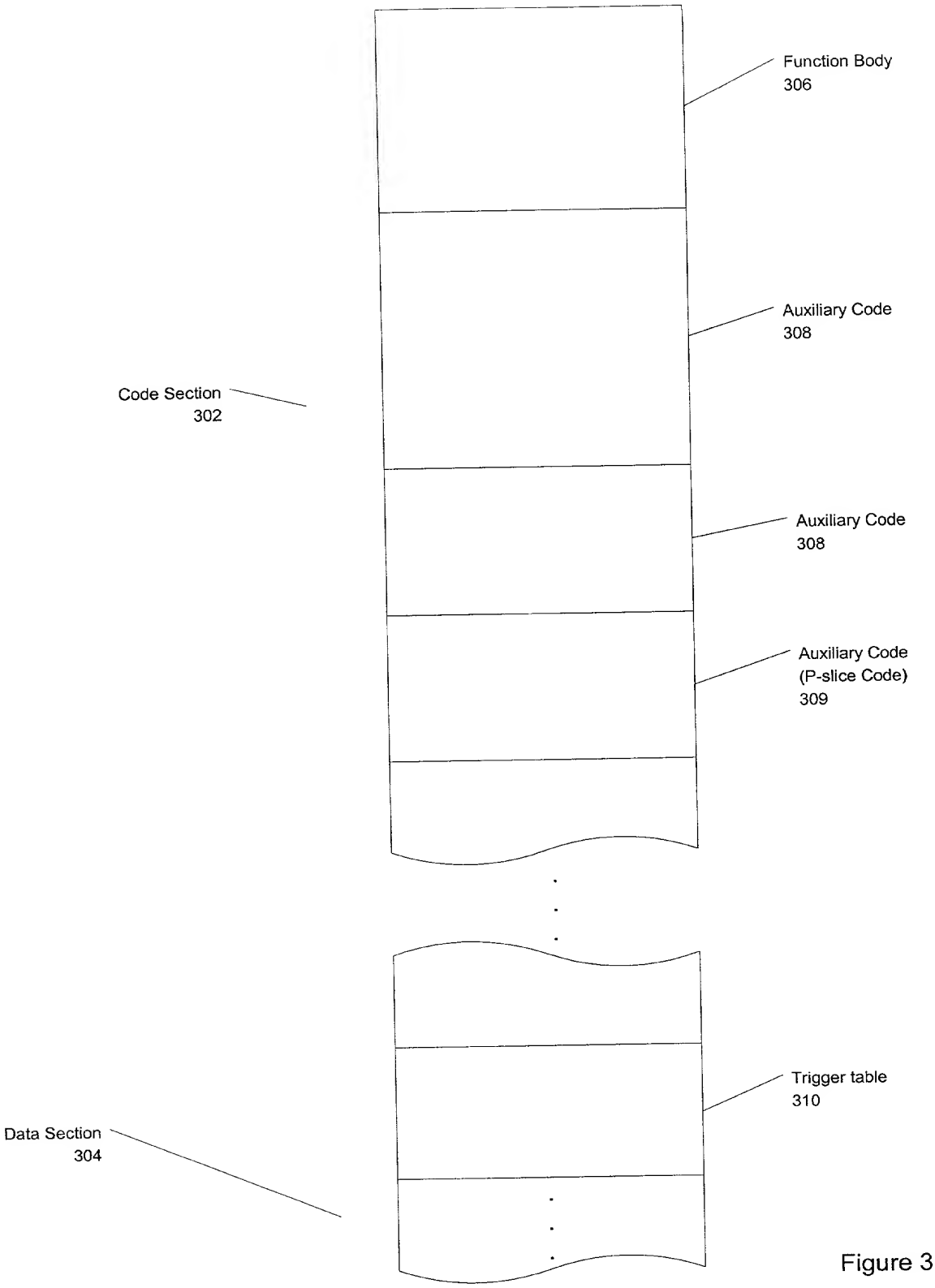

Figure 3

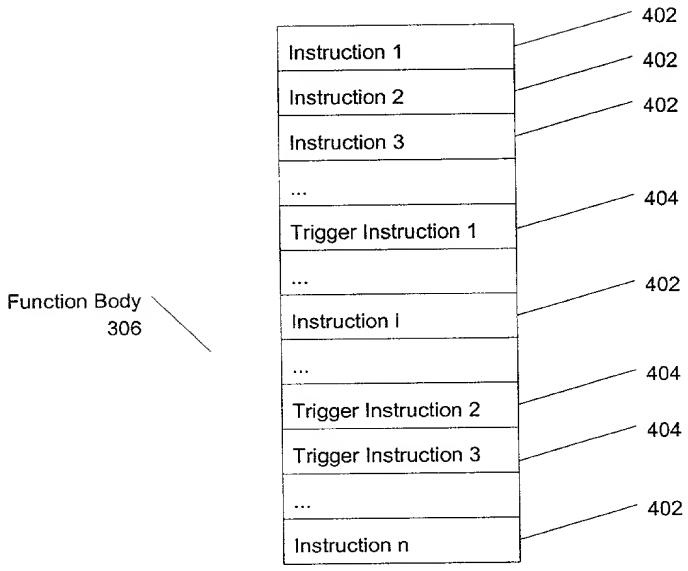
Function Body
306
Instruction 1
Instruction 2
Instruction 3
...
Trigger Instruction 1
...
Instruction I
...
Trigger Instruction 2
Trigger Instruction 3
...
Instruction n
402
402
402
404
402
404
404
402

Figure 4

Docket No. 2003P15215US

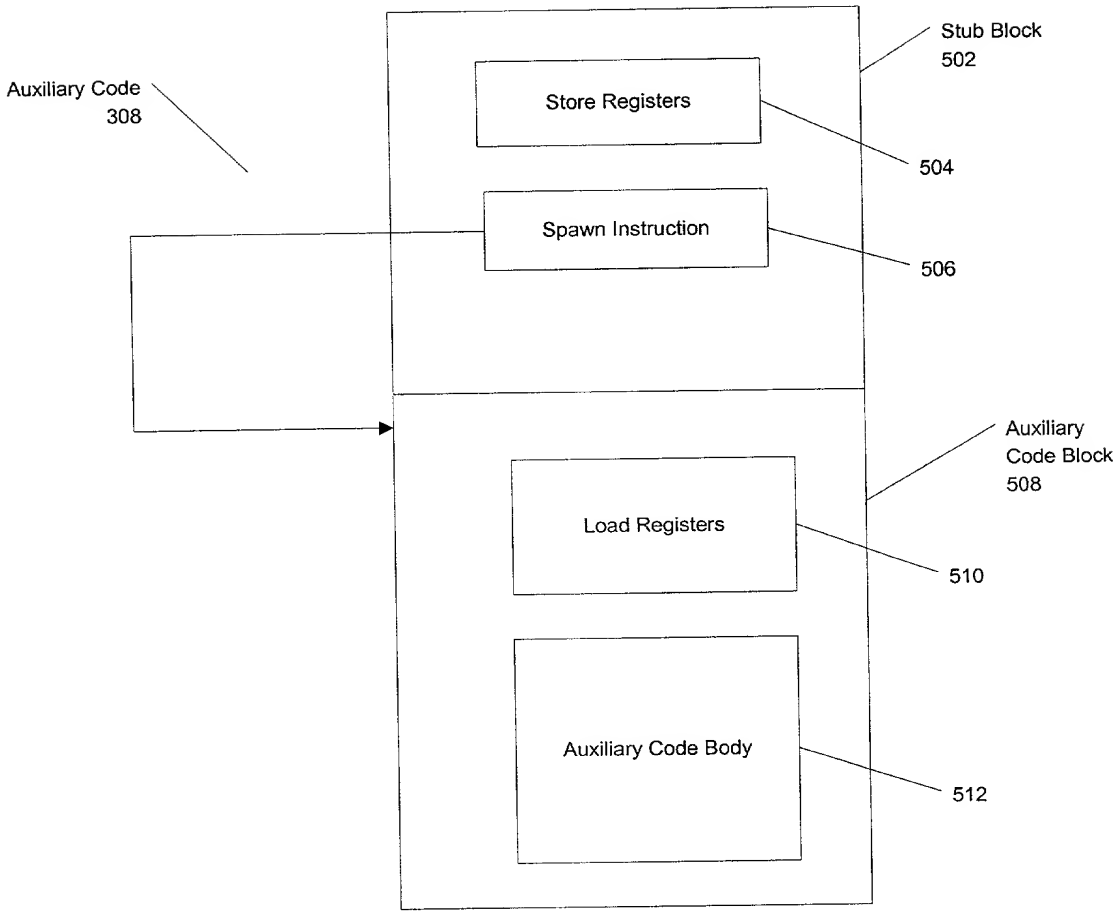

Figure 5

Docket No. 5025.0029.US

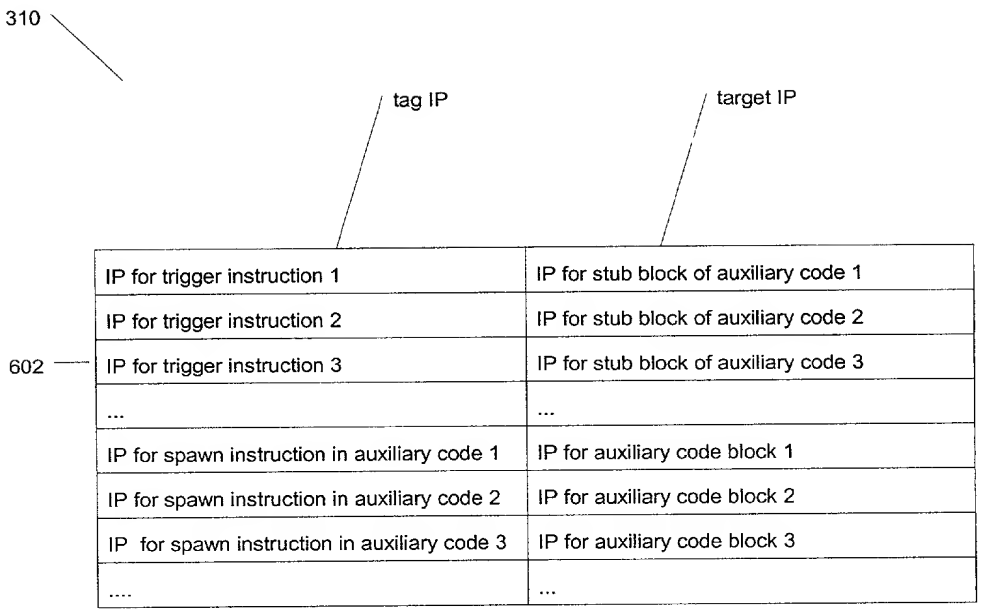

Figure 6

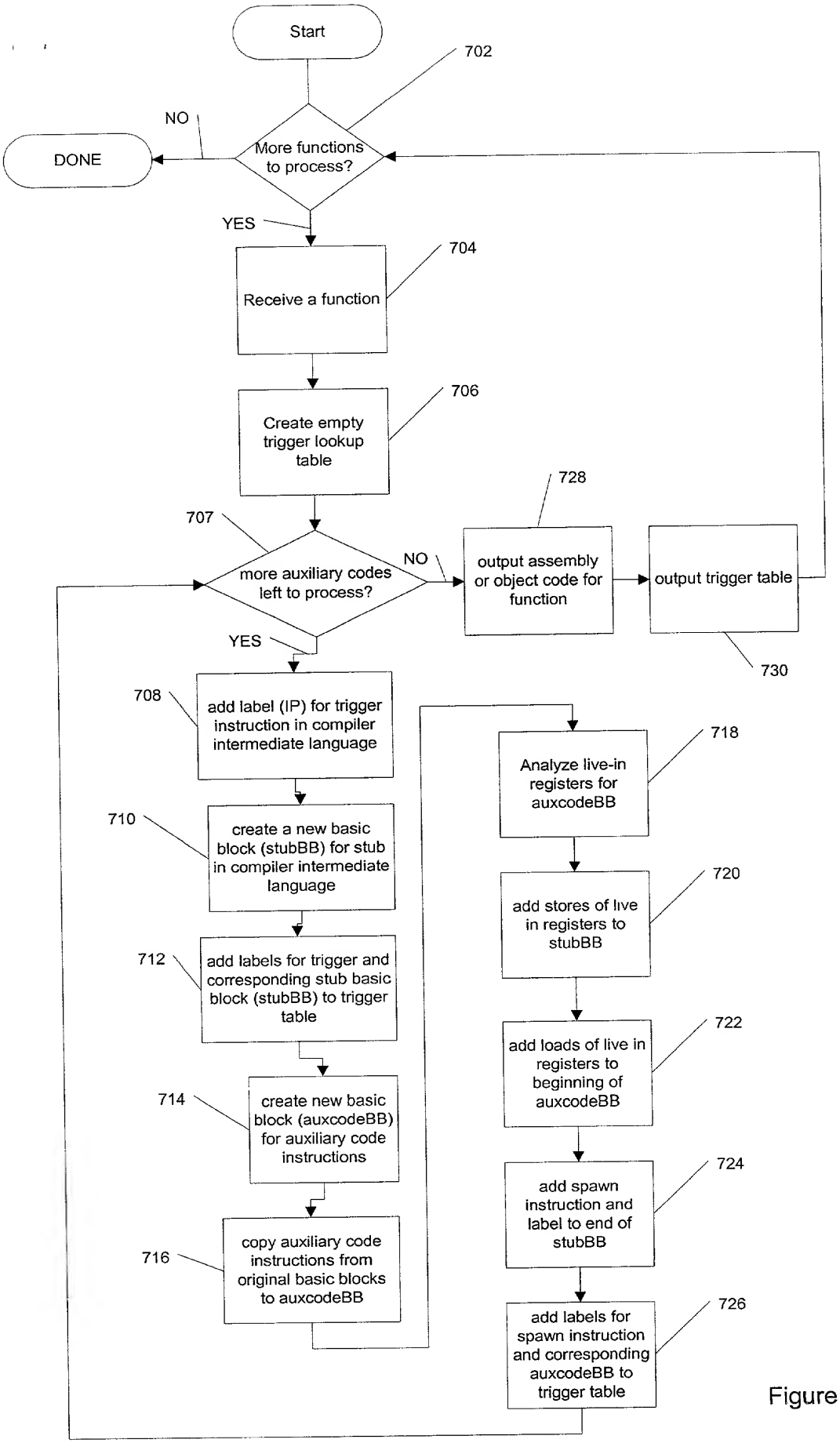
Start
702
NO
DONE
More functions to process?
YES
704
Receive a function
706
Create empty trigger lookup table
728
707
more auxiliary codes left to process?
NO
output assembly or object code for function
output trigger table
730
YES
708
add label (IP) for trigger instruction in compiler intermediate language
710
create a new basic block (stubBB) for stub in compiler intermediate language
712
add labels for trigger and corresponding stub basic block (stubBB) to trigger table
714
create new basic block (auxcodeBB) for auxiliary code instructions
716
copy auxiliary code instructions from original basic blocks to auxcodeBB
718
Analyze live-in registers for auxcodeBB
720
add stores of live in registers to stubBB
722
add loads of live in registers to beginning of auxcodeBB
724
add spawn instruction and label to end of stubBB
726
add labels for spawn instruction and corresponding auxcodeBB to trigger table

Figure 7